RHL

2010 catalogue

www.rhldirect.com
0845 1246066

Welcome to our new 2010 catalogue! We have introduced many new and enhanced products offering great performance, very low power consumption, are ease to use and, as usual outstanding reliability.

All our customers can now benefit from our constantly expanding range of energy efficient ventilation fans - they are environmentally friendly, powerful and effective.

Should you need a bespoke ventilation fan system, with our expertise we are more than happy to design and build a ventilation fan/system with a robust technical edge that meets your requirements.

Member of:

FETA

HEVAC

Humidity Group
of the HEVAC Association

Accreditation:

exor
EXOR MANAGEMENT SERVICES LIMITED

TRUST MARK
Government Endorsed Standards

Warranty:

As RHL manufacture domestic ventilation products to the highest standards, all our products come with at least a two year replacement guarantee against any unlikely failure. Maglev-powered fans come with a five year replacement warranty.

For contract works we offer a 'two-part' guarantee: during the second year of the warranty period we offer an RHL site visit to replace any faulty equipment.

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RHL and the Environment

Environmental protection is our priority - RHL recognizes its responsibility as a leading manufacturer and is continually striving to reduce the environmental impact of the work we do and the products we create.

Product design
Environmental consideration is part of the RHL design process - selecting eco-friendly raw materials and carefully planning their quantity, minimising energy consumption required for manufacturing and use, and the ease of recycling. Our AUTOSTAT smart humidity controllers with advanced software save energy with predictive control only operating the ventilation system when required, making all our products even more environmentally friendly.

RHL continually refines its product design to maximize efficiency while minimizing waste.

Responsible Manufacturing
RHL helps to safeguard the environment by restricting the use of environmentally harmful compounds in our materials and manufacturing processes.

Energy efficiency
An electric device's greatest environmental impact is often its energy consumption over time. That is why RHL has made great strides in recent years to optimize the energy efficiency of our products - in recent years RHL have introduced a wide range of eco-friendly products that allow consumers to minimise the power consumption, including Heat Recovery Ventilator (ODYC HRV), low energy consuming WOLF bathroom and kitchen fans.

Eco Friendly Products
RHL offer a comprehensive range of AUTOSTAT humidity controller equipped extractor fans that are eco friendly and contribute to sustainable living. The patented AUTOSTAT humidity controllers save electricity by constantly monitoring bathroom and kitchen environments and controlling the extractor fan action accordingly - the fans only operate when strictly necessary, significantly contributing to energy conservation.

Recycling of Products
RHL's approach to product design and manufacture enables consumers and businesses to dispose of used RHL equipment in an environmentally sound manner.

RHL recommends that customers dispose of their used ventilation equipment in an environmentally sound manner. Potential methods include reuse or recycling of products.

Waste Electrical and Electronic Equipment (WEEE)
In the European Union, this label indicates that this product should not be disposed of with household waste. It should be deposited at an appropriate facility to enable recovery and recycling. For information on how to responsibly recycle RHL products featuring this label, please call RHL on 0118 9665055 or email sales@rhldirect.com.

Preventing Damp and Condensation, Eliminating Mould.

In Great Britain, condensation and mould growth problems are reported within about 15% of properties.
Rodger Edwards "Handbook of Domestic Ventilation" Elsevier Butterworth-Heinemann, 2005

HOW CAN I PREVENT DAMP, CONDENSATION AND MOULD?

Firstly, it is necessary to make cooler surfaces located on the external walls less prone to condensate and mould. You can achieve this by improving air circulation around these areas and to let the ambient room temperature get at the cold surfaces and thereby increase the surface temperature above the dew point. This can mean using thinner curtains, pulling the bed/wardrobe away from the wall and rearranging the room to stop insulating the cold external wall surface.
Secondly, you need to regularly clear any signs of mould. Polycell 3 in 1 Mould Killer (please remember to use gloves) will kill mould spores. You need to throw out any material items that smell of mould and will not wash out.
Thirdly, you need to establish where and why certain areas in your house are affected by condensation and mould. Please think about the following moisture sources: metabolic evaporation, cooking, washing clothes, drying clothes indoors, dishwashing, washing/bathing, etc. All of these generate moisture in to the air.
Fourthly, what is happening to the moisture created in your kitchen and bathroom? Do you have automatic ventilators/fans? Are they effective? Do they have humidity controllers? Ideally, you should also have a passive air vent at high level in your bedroom.

HUMIDITY AND CONDENSATION

Humidity is a term used to describe moisture carried in air. Relative humidity (RH) is a measurement of the amount of moisture carried that the air can hold at a specific temperature. If the air in a room holds 50 percent of the moisture it is capable of holding at that temperature, its RH would be at 50 percent. Absolute humidity permeates uniform throughout a room, while RH varies from room to room. One hundred percent RH means that the air is completely saturated and can hold no more moisture.

Warm air holds more moisture than cool air. As air cools, it releases its moisture, which is why the highest RH in a room is near the coldest surface where warm air cools – as a result cold windows mist up, dew is forming up behind wardrobes and inside the back of wardrobes, or behind curtains, beds, etc.

HUMIDITY AND MICROBES

Bacterial growth increases below 30 percent RH and above 60 percent. Dust mites thrive in humidity levels above 50 percent. Hay fever incidents increase at levels above 60 percent RH and below 40 percent. Controlling humidity is essential to preserving quality indoor air. Note that humidity conditions and moisture are not solely to blame for microbial growth. Poor ventilation must also be improved to correct problems.

CONTROLLING HUMIDITY

Many buildings need to be dehumidified at various times of the year, based on changes of the season and other factors, to prevent indoor air that is too humid. Another integral component of controlling humidity is to locate and remove unwanted sources of moisture in the building, such as roof or plumbing leaks.

Maglev: the next generation performance and reliability.

2010 fan range featuring magnetic levitation technology.

RHL are proud to introduce the next-generation ventilation technology - magnetic levitation (maglev) based motor fans.

The latest maglev technology provides a fan design created to provide superior performance, low noise and long life. These new fans feature zero friction with no contact between shaft and bearing. With excellent rotational stability, these new RHL fans eliminate vibration and typical wobble and shaking typically experienced in fan motors.

Maglev technology is now standard across the RHL wall and ceiling fan range.

Maglev technology benefits:

Low noise

Maglev fan motor propeller is suspended in air during rotation so that the shaft and bearing do not come into direct contact with each other to create friction, and this results in very low noise.

High temperature endurance

Lack of friction keeps the fan temperature low, significantly extending it's high temperature endurance.

Long life

Service life of 50,000 hours or even longer at room temperature.

Multi orientation

No friction, no matter how the fan is orientated (ceiling or wall mounted).

Good balance

No fan propeller slanting or swaying reduces vibrations.

Low power consumption

Around 33% less power consumption than conventional fans.

High efficiency

Higher air flow, thanks to smaller hub and larger propeller design.

Extended warranty

RHL Maglev fans come with a **5-year replacement warranty**.

British Antarctic Survey

Challenge: boot locker activity - changing, washing and drying clothes following external activities, which significantly increases room humidity, causing damp, condensation and mould.

RHL solution: AUTOSTAT smart humidity controllers.

Customer benefits: AUTOSTAT controllers constantly monitor air humidity levels and manage ventilation fans to keep indoor air at optimal humidity levels. No user intervention is ever required, it's all automatic.

AUTOSTAT smart humidity controller

Broadwater Farm Estate, London

Challenge: need to update old ventilation fans without replacing the old ventilation ducts.

RHL solution: customised BEAVER fans with emulated fittings for old ducting positions.

Customer benefits: both powerful and energy efficient BEAVER fans professionally fitted with existing ducting left intact.

BEAVER fan

Luxurious Residence, London

Challenge: a well known Hollywood celebrity wants to overhaul bathroom ventilation during house renovations. The new system must be efficient, very quiet, reliable and completely unobtrusive.

RHL solution: customised TWIN INLINE fans with concealed AUTOSTAT smart humidity controllers.

Customer benefits: with powerful TWIN INLINE fans installed away from the bathroom there is no fan noise. AUTOSTAT sensors are placed inside ventilation grilles, making them both very effective and fully concealed. Fully guaranteed professional installation.

Ventillation grille with concealed AUTOSTAT smart humidity controller

TWIN INLINE fan

Spa Green Estate, London

Challenge: a heritage site requires new ventilation fans with minimal visual impact.

RHL solution: purpose made HUSKY fans with adaptors to go over air bricks within tops of larder cupboards.

Customer benefits: modern and efficient ventilation system, no visible internal or external extractor fans, prompt and hassle free professional installation.

HUSKY fan

Gambia House, London

Challenge: a 20-story building with flats requires a new ventilation system that integrates well with the existing balanced flue heating system, both through a single fixed double glazed panel.

RHL solution: most flats feature custom made DOUBLE GLAZED PANEL made of acrylic and toughened glass. Precision cut panels feature both boiler flute and extractor fans with high level wind baffle.

Other flats were fitted with custom designed and precision laser cut high level wind baffles, attached directly to the wall.

Customer benefits: all flats now feature a modern energy efficient fans installed without drilling holes in walls. A very neat design with prompt installation.

RHL custom made HIGH LEVEL BAFFLE

RHL DOUBLE GLAZED PANEL WITH DUAL VENT

MOLE Bathroom Fan

Quiet and compact bathroom fan. Beast inside.

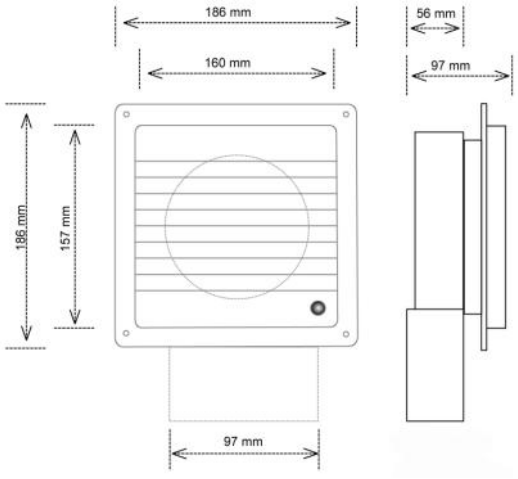
The MOLE bathroom fan quickly removes humidity and stale air from bathrooms where there are no opening windows and from internal bathrooms. It features a very powerful Maglev 12V motor and a remote transformer with timer overrun.

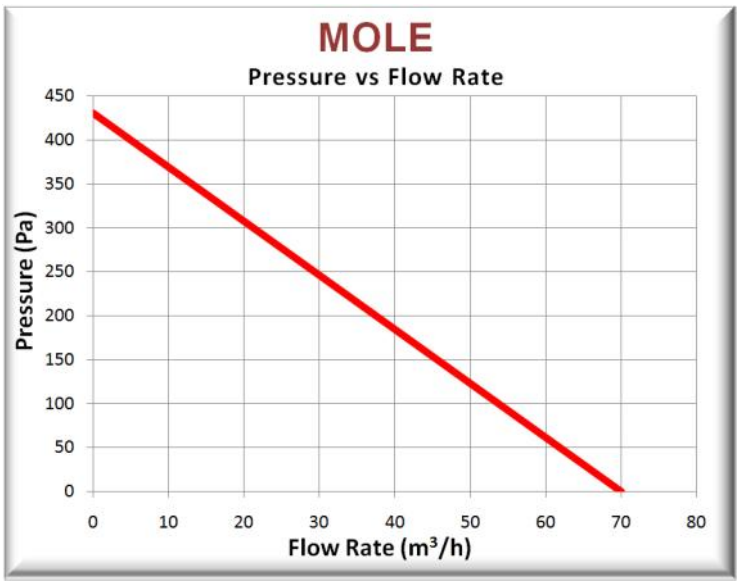
The powerful fan mechanism is less than 60mm long, making it ideal for domestic bathrooms with 90° air discharge ducting. This fan system produces very impressive 54m³/h at a pressure of 80pa and 65m³/h in free air. The mean noise level is only 30dB - that's very quiet for such a powerful bathroom fan.

Operation of the MOLE fan is fully automatic - the fan will operate when bathroom light is switched on. There are no user adjustments required. A single gang remote proportional timer transformer is included.

ECO FRIENDLY

MOLE uses only **8 WATTS** of electricity





Performance

MOLE Bathroom Fan: 70m³/h 430PA 30dB

Item	Part No.	Kit Contents
MOLE bathroom fan (wall)	**MOLE**	Fan with customised rectangular adaptor
MOLE bathroom fan (ceiling)	**MOLE C**	Fan with customised rectangular adaptor

Quieter. Greener. The ideal bathroom extractor fan.

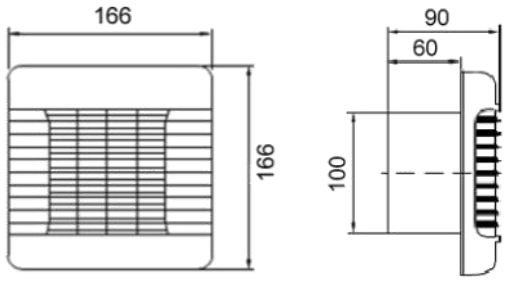
The ultra energy efficient WOLF B bathroom fan is designed for the demanding moisture extraction requirements of the bathroom, detecting the excessive moisture produced from bathing and then automatically extracting it away, providing a drier and healthier home. The powerful WOLF B TWIN bathroom fan features two efficient and powerful 12V DC maglev motors for the most demanding bathroom environments.

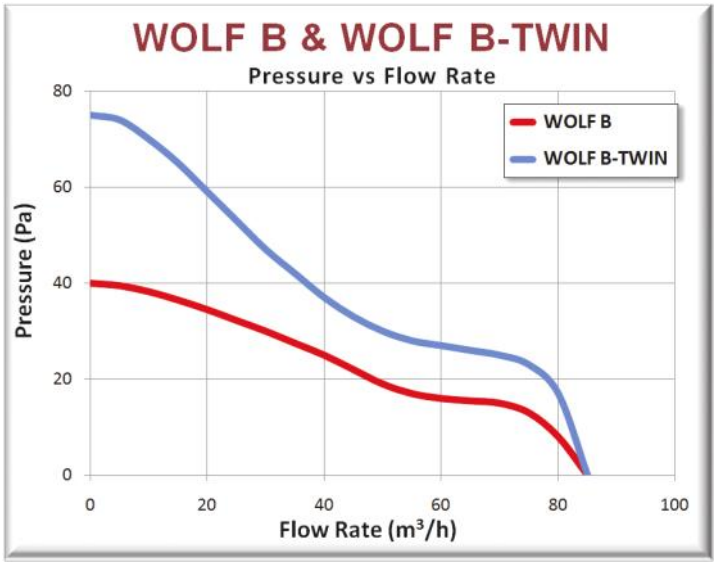
The operation of WOLF B and B-TWIN are fully automatic - the built-in AUTOSTAT humidity controller monitors bathroom humidity levels around the clock. There are no user adjustments and only a single pull cord control: the fan can be 'forced' to operate by switching to 'Manual', forcing the fan to operate at high speed extraction.

The WOLF B & B-TWIN have a built in LED indicator to show what mode the fan is in. At high speed the fan generates only 36dB of noise - you'll sure notice the difference. The advanced 12v maglev electric motor ensures excellent reliability for many years to come. A single gang remote SELV transformer is included as standard.

ECO FRIENDLY

WOLF B uses only **8 WATTS** of electricity





Performance

WOLF B Bathroom Fan: 85m³/h 40PA 36dB
WOLF B TWIN: 85m³/h 75Pa 22dB

Item	Part No.	Kit Contents
Fan + kit for wall installation	**WOLF B - WALL**	Wall sleeve & external grille, 12V transformer,
Fan + kit for single & double glazed window installation	**WOLF B - P WINDOW**	Window fixing kit with external grille, 12V transformer,
Fan + kit for acrylic double glazed window installation	**WOLF B -DG ACR**	Designer base with screws for acrylic fixing, 12V transformer,
High pressure fan for ducting	**WOLF-B-TWIN**	WOLF B TWIN fan only, 12V transformer,
Fan with timer for internal bath/shower rooms	**WOLF-BT**	WOLF B TWIN fan, AUTOSTAT IV, 12V timer transformer, mounting kit

Green kitchen fan. Available in white only.

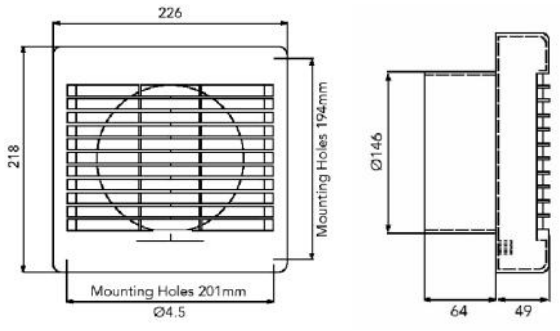
The low-watt WOLF K fan system is a powerful fully automatic kitchen fan. The fan is dual speed and utilises an energy efficient 5 WATT maglev motor.

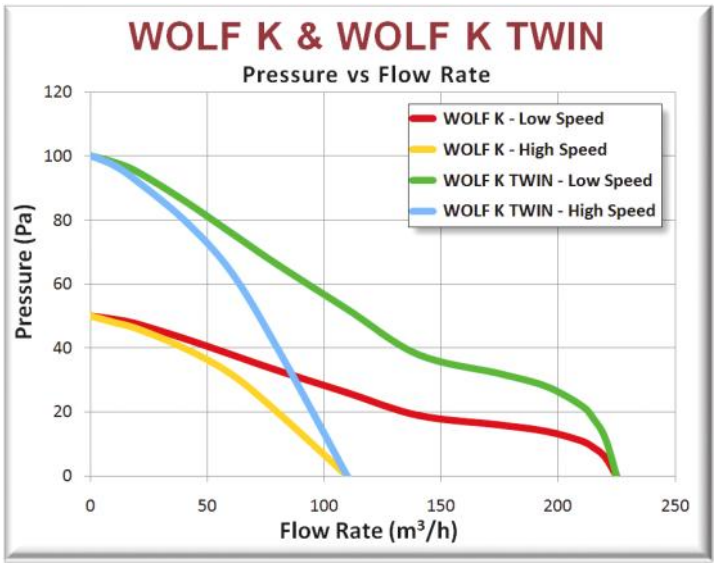
What's even better is the fully automatic operation for effective humidity control - no user or installation set up is required. WOLF K's onboard microprocessor has five-band humidity control thresholds (at different temperatures) allowing it to efficiently control humidity levels 24/7.

The WOLF K has a built in LED indicator to show what mode the fan is in. At high speed the fan generates only 30dB of noise (and only 18dB at low speed) and produces up to 220m³/h of air flow.

ECO FRIENDLY

VOLF K
ncorporates a **5**
VATTS motor.





Performance

WOLF K: 115-225m³/h 50Pa 30DB
WOLF K TWIN: 115-225m³/h 100Pa 18DB

Item	Part No.	Kit Contents
Fan + kit for wall installation	**WOLF K - WALL**	Wall sleeve & external grille
Fan + kit for single glazed window installation	**WOLF K - P WINDOW**	Window fixing kit with external grille
Fan + kit for acrylic double glazed window installation	**WOLF K - DG ACR**	Designer base with screws for acrylic fixing
Fan, dual inline impellor and motors	**WOLF K-TWIN**	High pressure fan for ducting

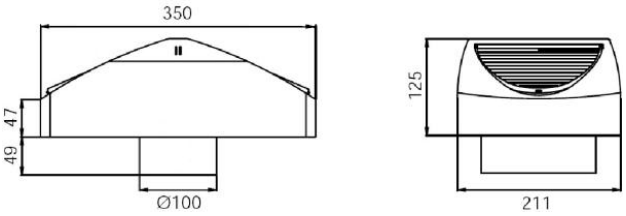
HUSKY Single Room Fan

Beautifully engineered performance fan.

Single room ventilation HUSKY fan is engineered to be durable, efficient, quiet and easy to maintain.

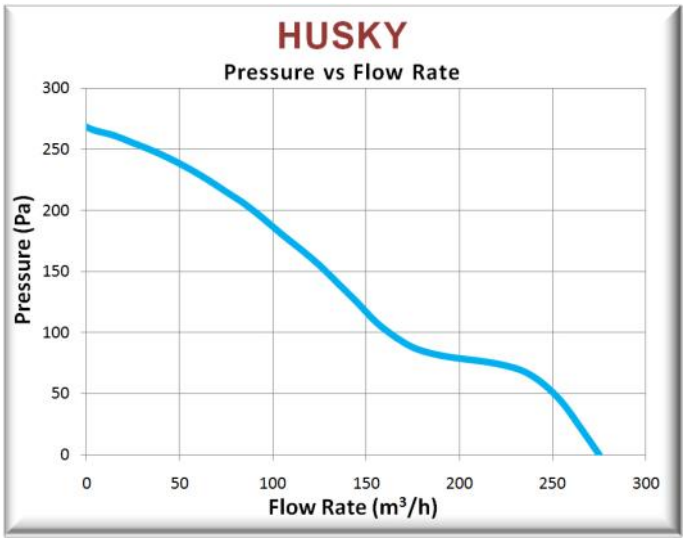
HUSKY is powered by highly efficient quality long-life maglev brushless DC motors. The vibration absorbing and sound deadened chassis is made of robust polycarbonate/ABS polymer - it's build to work hard for many many years. The advanced chassis also houses a transformer and AUTOSTAT smart humidity controller.

Each HUSKY fan is backed by a 5 year warranty. You can easily expect it to run trouble free for over 30000 hours.



Performance

HUSKY: 275m³/h 275Pa 30dB



Item	Part No.	Kit Contents
HUSKY fan with 4" spigot	**HUSKY-100**	Husky 100 fan with 4" spigot, Autostat IV, int. transformer
HUSKY fan with 6" spigot	**HUSKY-150**	Husky 150 fan with 6" spigot, Autostat IV, int. transformer
HUSKY fan with 4" spigot and onboard AUTOSTAT	**HUSKY-100-INT**	Husky 100 fan with 4" spigot, internal Autostat IV and transformer

Multiple configurations. Effective ventilation.

OTTER bathroom fan is a single room fan with timed overrun feature. It contains twin inline maglev fans to provide excellent flow rate and pressure characteristics.

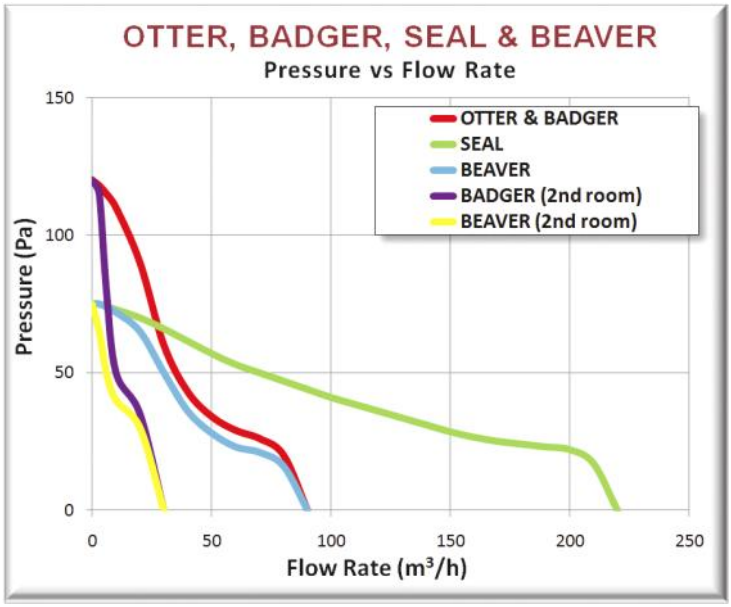
BADGER is a specialist two-room (bathroom and WC) fan with timed overrun and maglev 12V motor.

BEAVER is a twin two-room pressure fan with advanced humidity controller, a stand-by fan and visual indication for fan failure (as required by original LDC Directive). Integral AUTOSTAT smart humidity controller and remote transformer with proportional timer overrun are all included.

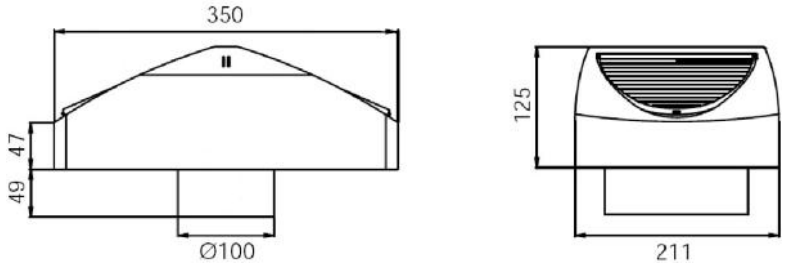
SEAL is a two-room (bathroom and kitchen) fan with AUTOSTAT smart humidity controller—the fan extracts air from both kitchen and bathroom. This fan is mounted on a dividing wall; the second 125mm spigot on the back of the fan is for the extract exhaust by way of ducting to external air.

All four fans feature the following:

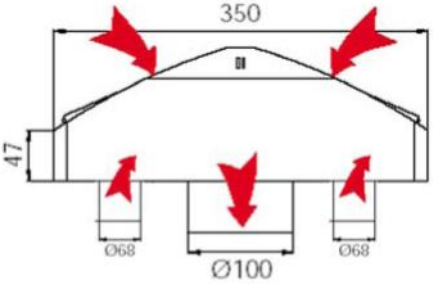
- 12V Power Supply / Timer (on BEAVER only) - this advanced power supply unit easily fits into a one gang box, and is programmed for proportional timer control. Safe for use in wet areas;
- Sound dampener - to ensure a gentle sound level;
- 12V brushless long life Maglev DC fan motors - designed to operate for 50,000 hours+ fault free;
- Hand removable front grilles - these dishwasher safe front grilles are easy to clean (fixed and tamper proof grille fittings are available for public locations).

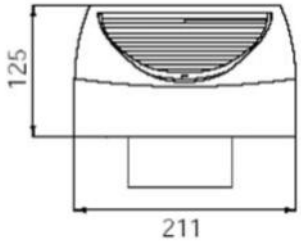


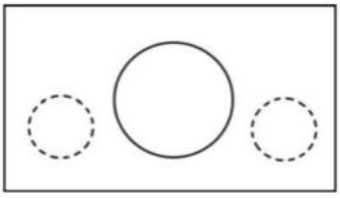
OTTER



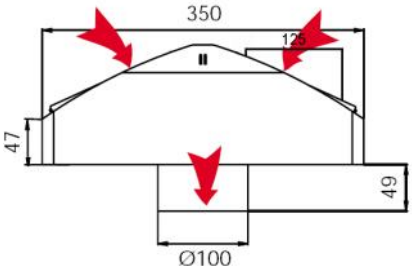
BEAVER & BADGER

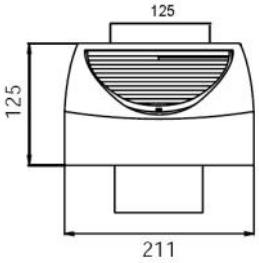






SEAL (with front spigot)





Performance

OTTER & BADGER: 90m³/h 120Pa 30dB
SEAL: 225m³/h 75Pa 30dB
BEAVER: 90m³/h 75Pa 30dB

Item	Part No.	Kit Contents
OTTER fan 240V supply	**OTTER TR85-240**	OTTER fan with timer overrun and IP54 connection
OTTER fan 12V supply	**OTTER TR85-12**	OTTER fan with remote transformer and timer overrun
BADGER fan 240V supply	**BADGER 240**	BADGER fan with two room timer overrun and IP54 connection
BADGER fan 12V supply	**BADGER 12**	BADGER fan with two room remote transformer and timer overrun
PLEASE NOTE: BADGER fan will be supplied with 2nd 68mm spigot for left or right hand back fixing for the second room vent, and suffix T for side spigot version.		
BEAVER fan	**BEAVER**	BEAVER fan with built-in timer, external AUTOSTAT
SEAL fan	**SEAL**	SEAL fan with built-in timer, external AUTOSTAT

ODYSSEY DRYVENT B Bathroom Humidity Control Fan

Automatic condensation control.

ODYSSEY DRYVENT B is a high performance bathroom fan designed for the most demanding condensation control requirements.

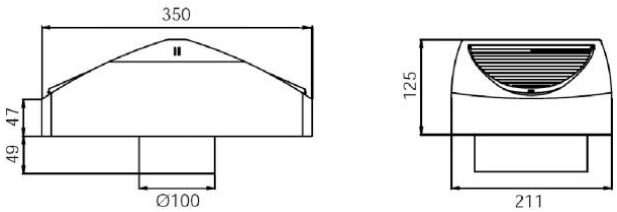
The fan includes an integral AUTOSTAT humidity controller, providing automatic condensation control.

ODYSSEY DRYVENT B continually extracts air on low speed to remove moisture laden air at source before it can condense, as well at creating a background level of ventilation causing infiltration of fresh, incoming air. When the built-in AUTOSTAT detects the humidity level rising the fan then triggers into high speed mode delivering powerful performance when it is needed most.

Both the advanced chassis construction and super efficient maglev fan motors provide for very effective and quiet operation. The chassis is both vibration absorbing and sound deadened.

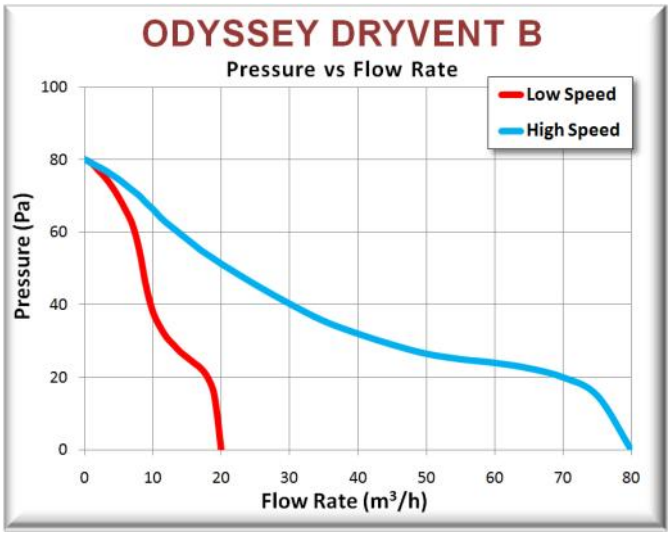
ECO FRIENDLY

DRYVENT B uses only **6 WATTS** of electricity



Performance

ODYSSEY Dryvent B: 20m³/h 80Pa 30dB



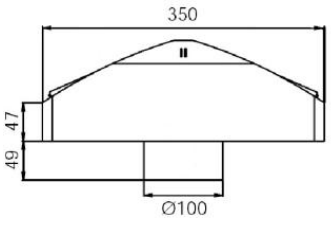
Item	Part No.	Kit Contents
DRYVENT B fan 240V supply	**DRYVENT B**	DRYVENT B fan with humidity control and IP54 connection
DRYVENT B fan 12V supply	**DRYVENT B 12**	DRYVENT B fan with humidity control and separate timer transformer

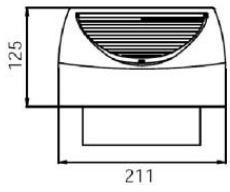
Humidity. Gone. Quietly.

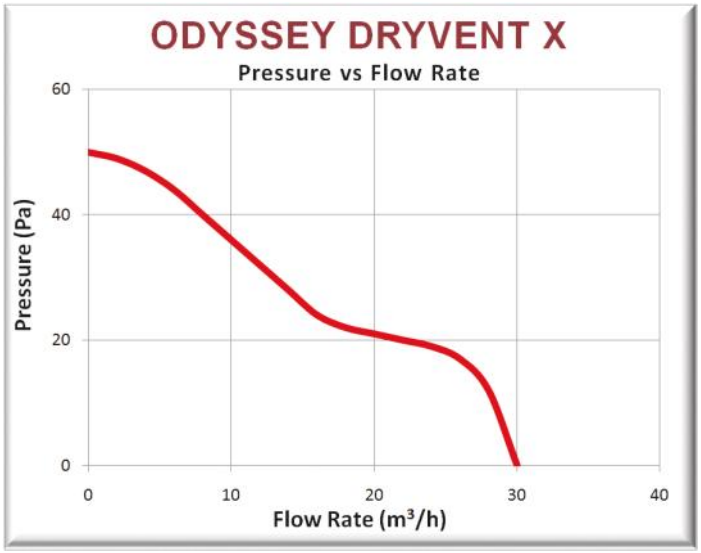
Humidity problems in your bedroom, cupboard or store room? Enter the ODYSSEY DRYVENT X fan. It's in its element quietly extracting humidity and dehumidifying.

The fan runs constantly at a trickle speed (so it's very quiet), both intake and extract - this cools the area immediate to the fan, attracts moisture and then extracts it away. Very simple and very effective.

The chassis is both vibration absorbing and sound deadened. There are also two highly efficient quality long-life brushless DC motors. Two front grilles feature washable and changeable filters.







Performance

ODYSSEY DRYVENT X: 30m³/h 50Pa 20dB

Item	Part No.	Kit Contents
DRYVENT X fan 240V supply	**DRYVENT X**	Dryvent X fan

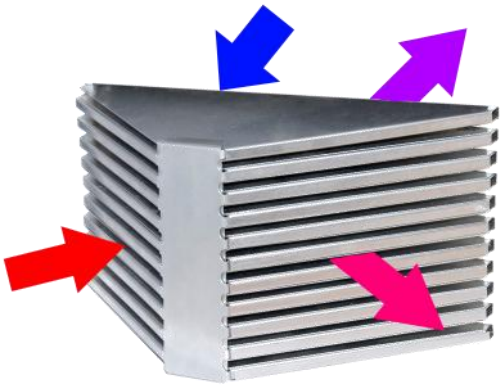
Heat recovery. Lower bills.

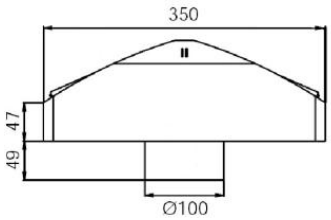
POLAR HRV (Heat Recovery Ventilation) fan helps you both save the environment and save money. The fan features aluminium heat exchanger core: in the heating season, the core transfers heat from the outgoing, stale household air to preheat the incoming, fresh air.

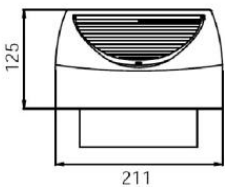
The cross-current sections inside the fan ensure the two air streams are always kept separate preventing the incoming fresh air from being contaminated by the outgoing stale air.

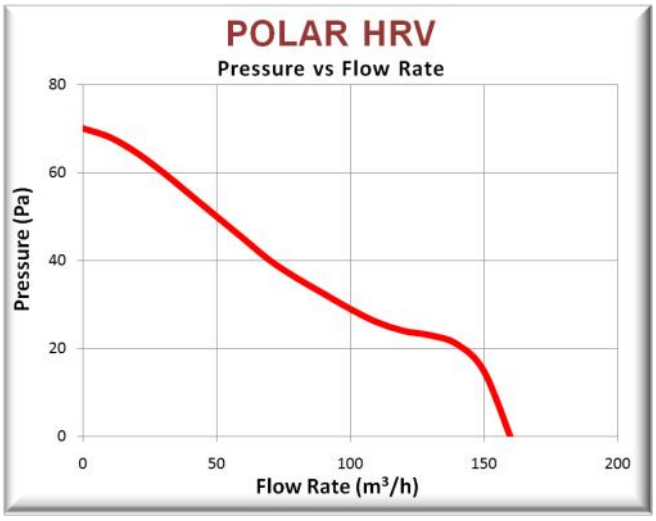
POLAR HRV also helps maintain a comfortable humidity level in the home in the heating season.

POLAR HRV Airflow Principle









Performance

POLAR HRV : 30m³/h 50Pa 30dB

Item	Part No.	Kit Contents
HRV fan	**POLAR HRV**	POLAR HRV fan with Heat Recovery Ventilation

SF12 Bathroom Humidity Control Fan

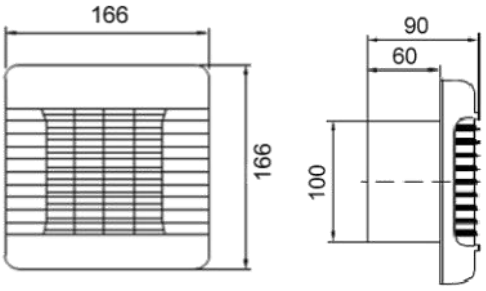
The new bathroom fan standard.

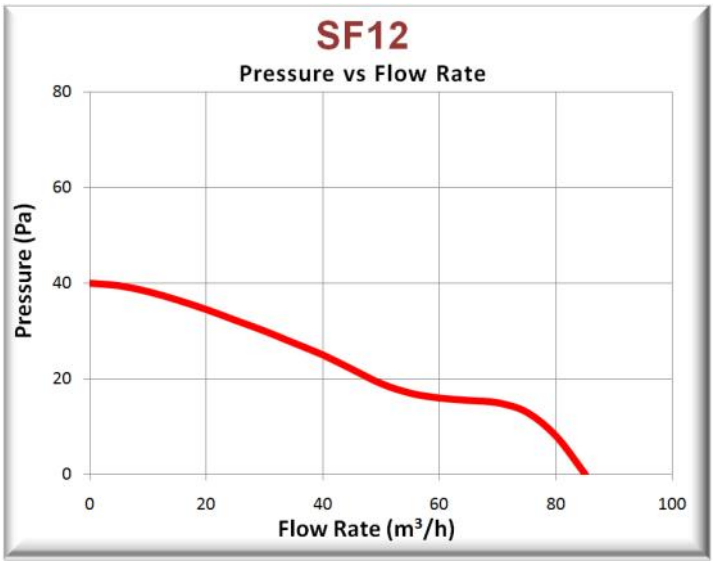
SF12 is a 12V high performance bathroom fan featuring Maglev technology, and is available in a kit form for either wall, window or double glazing installation (100mm/4 inch back spigot).

This attractively styled fan is designed for the demanding humidity control requirements of bathroom environments. Humidity control is achieved by the inclusion of a remote, microprocessor driven Autostat unit, combining our years of ventilation control experience with modern electronics, allowing user friendly automatic humidity control.

SF12 fan uses only **4 WATTS** of electricity

ECO FRIENDLY





Performance

SF12: 85m³/h 40Pa 30dB

Item	Part No.	Kit Contents
SF12 fan	**SF12-FAN**	SF12 fan only
SF12 wall kit	**SF12-KIT**	SF12 fan, Autostat IV, 12V transformer, external grille, mounting kit
SF12 window kit	**SF12P-KIT**	SF12 fan, Autostat IV, 12V transformer, window
SF12 double glazing kit	**SF12-DG**	SF12 fan, Autostat IV, 12V transformer, RHL

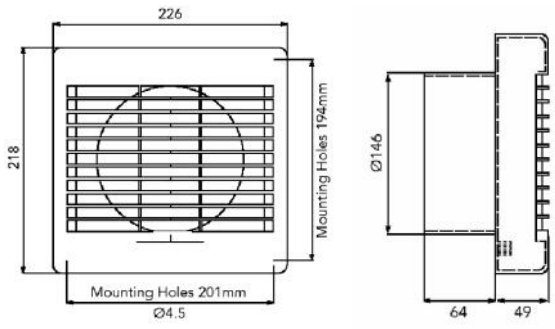
AS2 Kitchen Humidity Control Fan

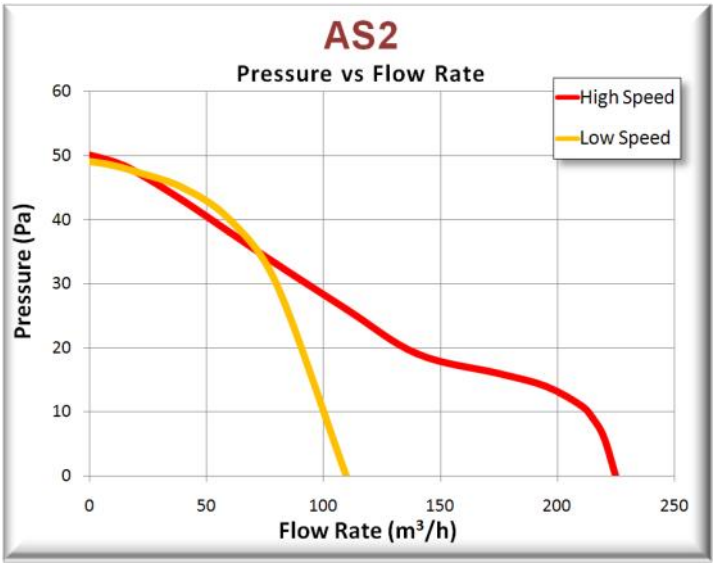
Consistent performance. Recommended for all kitchens.

AS2 is our well proven and very reliable 240V kitchen fan featuring the latest Maglev technology, and is available in a kit form for either wall, window or double glazing installation (150mm/6 inch back spigot).

This attractively styled fan is designed for effective humidity control operation within kitchen environments. All AS2 kits include a remote AUTOSTAT smart humidity controller which can be placed away from the fan for optimal humidity control - it provides a very effective and user friendly kitchen humidity control solution.

The AS2 includes a removable stainless steel filter that can be easily removed for cleaning, keeping the inner workings of the AS2 safe from harm, ensuring a long operational lifespan.





Performance

AS2 High Speed: 220m³/h 40Pa 30dB
AS2 Low Speed: 120m³/h 40Pa 22dB

Item	Part No.	Kit Contents
AS2 fan	**AS2-FAN**	AS2 fan only
AS2 + AUTOSTAT IV + wall kit	**AS2-KIT**	AS2 fan, AUTOSTATIV, external grille, mounting kit
AS2 + AUTOSTAT IV + window kit	**AS2-P-KIT**	AS2 fan, AUTOSTAT IV, window mounting kit
AS2 + AUTOSTAT IV + double glazing kit	**AS2-DG**	AS2 fan, AUTOSTAT IV, RHL double glazed panel mounting kit

MIXVENT INLINE High Volume, Medium Pressure Fan

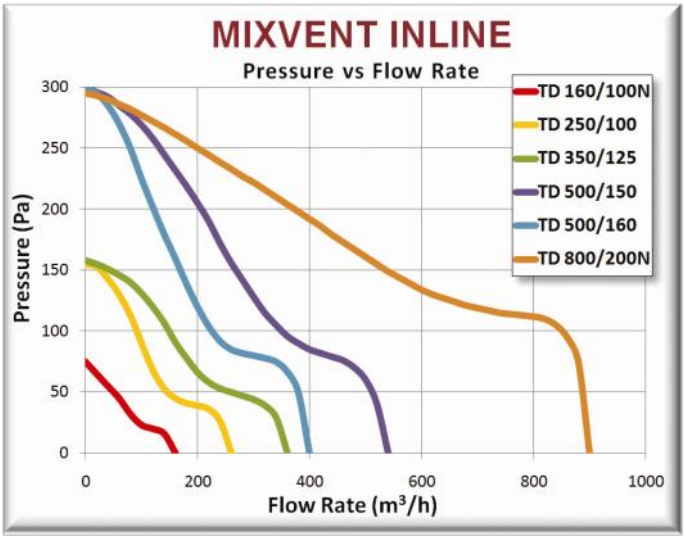
Minimum space. Medium pressure. Maximum airflow.

The MIXVENT INLINE series of in-line duct fans have been specially designed to maximize the airflow performance with minimal noise levels within the smallest and most compact of casing sizes. This makes these fans the ultimate solution for small to medium sized ventilation installations which require a high airflow to pressure ratio and occupy only the minimum space possible. Example: false ceiling voids, cupboards and many other limited space environments.

All the MIXVENT INLINE models have been designed with the professional contractor/engineer in mind. All models include a "removable body" feature that enables the motor-impeller assembly to be completely removed or replaced without the need to interfere with the attached ducting.

Performance

MIXVENT TD 160/100N: 160m³/h 75Pa 28Db
MIXVENT TD 250/100: 250m³/h 155Pa 28Db
MIXVENT TD 350/125: 360m³/h 158Pa 30Db
MIXVENT TD 500/150: 535m³/h 300Pa 33Db
MIXVENT TD 500/160: 400m³/h 300Pa 41Db
MIXVENT TD 800/200N: 907m³/h 295Pa 41Db



Item	Part No.	Kit Contents
TD160/100N fan	**INLINETD160/100N**	MIXVENT INLINE TD160/100N 240V pressure fan, instructions
TD160/100N fan	**INLINETD250/100**	MIXVENT INLINE TD160/100N 240V pressure fan, instructions
TD160/100N fan	**INLINETD350/125**	MIXVENT INLINE TD160/100N 240V pressure fan, instructions
TD500/150 fan	**INLINETD500/150**	MIXVENT INLINE TD500/150 240V pressure fan, instructions
TD500/160 fan	**INLINETD500/160**	MIXVENT INLINE TD500/160 240V pressure fan, instructions
TD800/200 fan	**INLINETD800/200N**	MIXVENT INLINE TD800/200 240V pressure fan, instructions

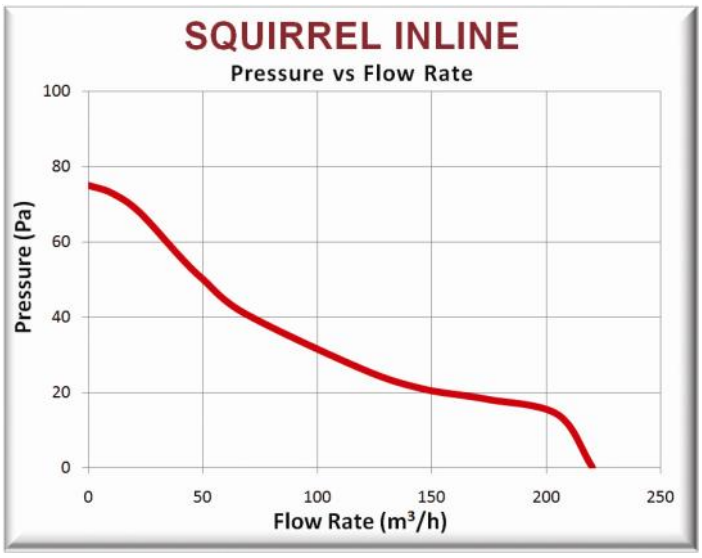
Concealed performance.

SQUIRREL INLINE is a high performance fan designed to meet more specific extract requirements.

With the use of three speed settings, it requires absolute minimum end-user input.

The design incorporates of a custom build galvanised steel box, integral power supply, control and transistor circuitry and extensive sound deadening. The tough and durable construction makes it perfect for concealed type installations - it is the choice for concealed kitchen and continuously operating ventilation systems, where both powerful extraction and low noise pollution are required.

The fan also includes integrated 12V transformer, making it safe to use in wet areas.



Performance

TRIPLE INLINE: 220m³/h 120Pa 30dB

Item	Part No.	Kit Contents
SQUIRREL INLINE fan	**TRIPLE-INLINE**	Custom build TRIPLE INLINE fan

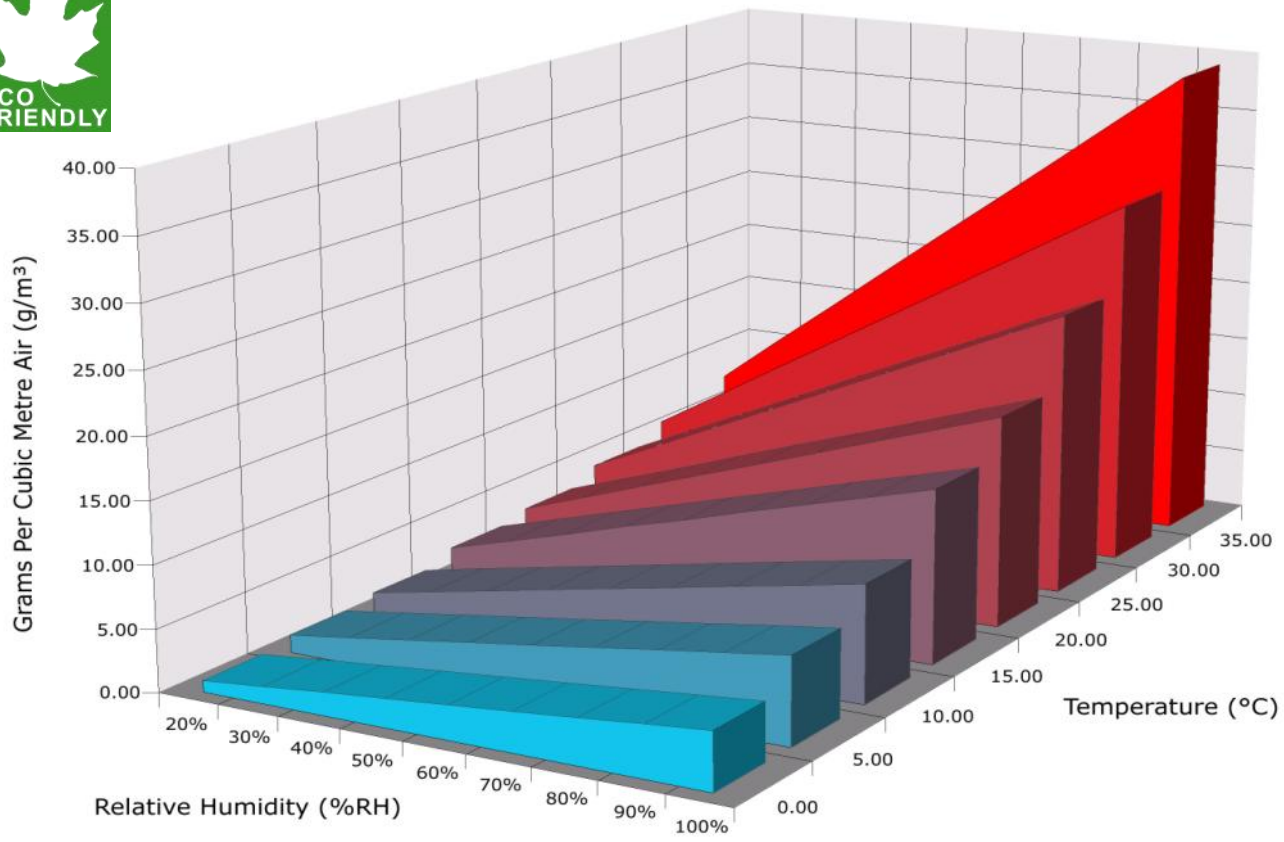
AUTOSTAT Smart Humidity Controller

Years of experience. And brains too.

The AUTOSTAT is an intelligent, microprocessor driven controller for all domestic fans. Unlike conventional humidistats, AUTOSTAT is based on a determination of absolute humidity, not relative humidity. The important difference between the two is that absolute humidity is not affected by the temperature of the surrounding environment, making the AUTOSTAT perfectly suited to environments with widely fluctuating air moisture content.

By way of example, cooking and tumble dryers produce copious amounts of water vapour, however a local RH% controller would register only a slight increase in RH% due to a simultaneous increase in temperature, causing the air to hold more moisture (see graph below). Increased ventilation would therefore not be triggered. The AUTOSTAT would however identify a change in the moisture content of the air and react accordingly.

ECO FRIENDLY

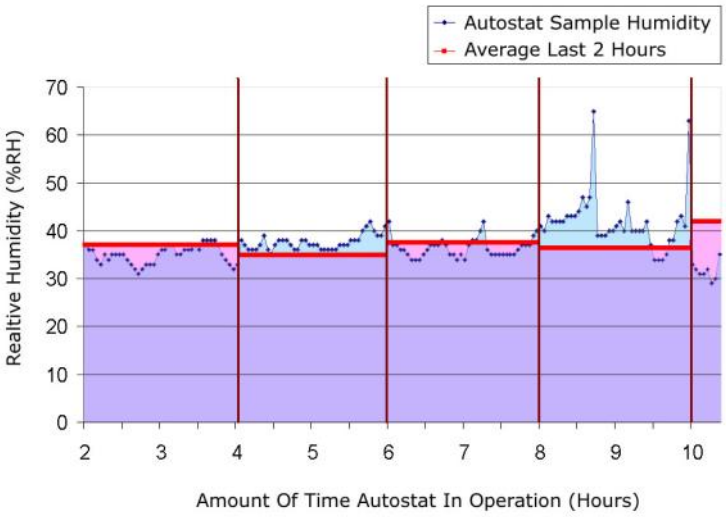


The Autostat is protected by the following patents 2316188 (UK), 6230980B1 (US), 2262657(Canada) H10-509502 (Japan), 0917677 (Ireland) and International Patent PC/GB97/02155

Humidity Control

AUTOSTAT Operation

The AUTOSTAT samples the surrounding environment at regular intervals, stores and averages the results over the previous two hours and uses this as a reference base of humidity for the next two hours. When the measured humidity exceeds this reference base by a predetermined amount the controller triggers action, as illustrated in the graph to the right.



RHL's AUTOSTAT humidity controller ensures low fan power consumption by constantly monitoring the humidity and temperature levels, and triggering the

ECO FRIENDLY

AUTOSTAT Options

AUTOSTAT is pre programmed at the factory and will not require adjustment throughout its lifetime. The units operate on 240V AC and 12V AC/DC and provide output control through relay load output position 1.

- Integral override on pull switch;
- Remote override on;
- Light switch trigger with proportional on time hold;
- Voltage free output control with switch over relay;
- On board program header, with Autostat IV programming software available from website;
- Link settings for 12/240v ac or voltage free relay (items factory set);
- Autostat IV spreadsheet to generate custom graphs on downloaded log data;
- Tri-coloured LED Status indicator;
- Extensive User Manual, covering all Autostat IV software and Autostat operations available for download on request.

Operation modes	
Standard	Auto humidity control
Manual	Override on.
Internal bathroom	Timer overrun Auto 1 - 15 minutes, proportional on time
Control Settings	
Controlling humidity range	Auto set 300 pa at 20 °C Auto changing with temp
Auto Humidity temperature control Range	0 >9, 10>19, 20>29, 30>39 40>50 °C
Electrical Range	
Relay	S.P.C.O
Load Resistive (max.)	10 Amps
Load Inductive (max.)	3.5 Amps
Supply Voltages	240V 50Hz & 12V AC SELV
Data	
Data Storage (Max/Min/Av)	Relative Humidity RH Temperature °C Vapour Pressure Pa
Data	1 per hour > 10 days 1 per 6 hours > 1 year
Operating Data	Fan run time, date/time Number of times user turns system on, + date from download time to last switch

Item	Part No.	Kit Contents
12V Autostat IV with data log	**Autostat-IV-12V**	12V Autostat IV, mounting screws, installation instructions
12V Autostat IV with data log and pull cord	**Autostat-IV-12VP**	12V Autostat IV, mounting screws, installation instructions
240V Autostat IV with data log	**Autostat-IV-240V**	240V Autostat IV, mounting screws, installation instructions

AUTOSTAT - PC Connection Software

The AUTOSTAT is designed to work with ventilation equipment to ensure a comfortable environment - by monitoring a wide variety of air conditions and operating the ventilation equipment in the appropriate manner, the atmosphere in a room can be kept in a desirable condition. Depending on the settings and trigger values that have been stored within its memory, the desired atmospheric conditions can be fully customised. The AUTOSTAT software allows full control of these settings through an easy to use software application; you can alter all of the settings and triggers on an Autostat unit (editable calibration settings shown below), save your settings for future use, download and load settings into your Autostat, read the settings from a pre-programmed Autostat, download Autostat logs for analysis in spreadsheet package.

Data Logger Download

When connected to an Autostat via the program header the AUTOSTAT software is able to download the data held within the internal data logger of an AUTOSTAT unit and save it in a *.csv (comma separated value) file which can be imported by almost all spreadsheet packages, if you are running Excel 2000 or greater then you can import the data into the Autostat Spreadsheet Analyser package for analysis.

Flexibility

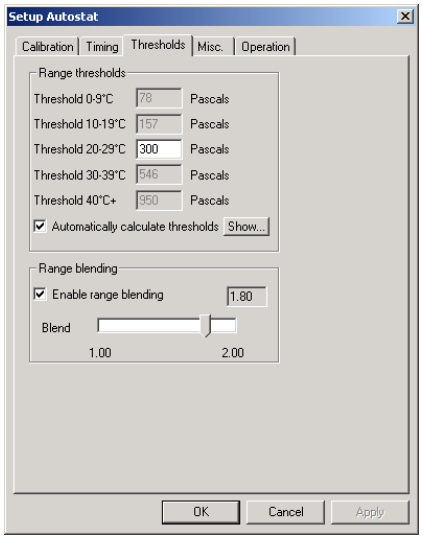
Although the AUTOSTAT comes pre programmed from the factory and should require no user adjustments to its internal setting throughout its lifetime, the AUTOSTAT software allows these settings to be changed. This gives the AUTOSTAT the power of flexibility: it can be customised to suit many environmental requirements.

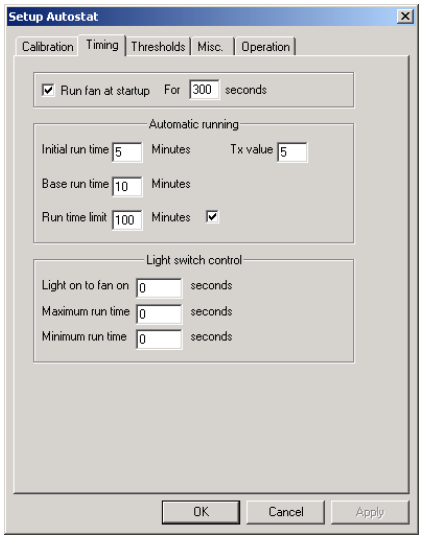
Diagnostics

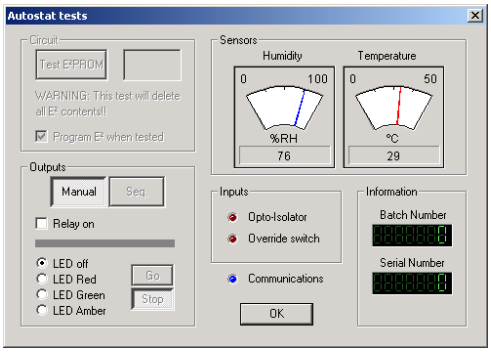
The AUTOSTAT software also features a testing dialog that allows a live output of the AUTOSTAT's sensor readings and current condition for testing purposes. This allows you to test:

- AUTOSTAT LED status indicator;
- Temperature Sensor;
- Humidity Sensor;
- Opto-Isolator;
- Override Switch;
- EEPROM (Electronically Erasable Programmable Read Only Memory).

An example of the testing dialog in the software is shown below.







System Requirements

System requirements for Autostat IV PC Connect software V2.x are:
Intel® Pentium® processor / AMD Athlon 200Mhz (400Mhz+ Recommended)
Microsoft® Windows 98 Second Edition, Windows Millennium Edition, Windows NT® 4.0 with Service Pack 6, Windows 2000 with Service Pack 2, Windows XP Professional or Home Edition, 64MB RAM

MS EXCEL® AUTOSTAT Data Analyser

Introduction

Once downloaded onto a computer the data collected by the Autostat IV can be imported into the Autostat IV spreadsheet for analysis. The spreadsheet uses a series of custom programmed macros that automatically format the data into a neat and easy to read form, and provides access to powerful tools like the Autostat graph wizard, to enable any user to quickly create graphs to present vital information in a simple format available for printing (example graph shown below).

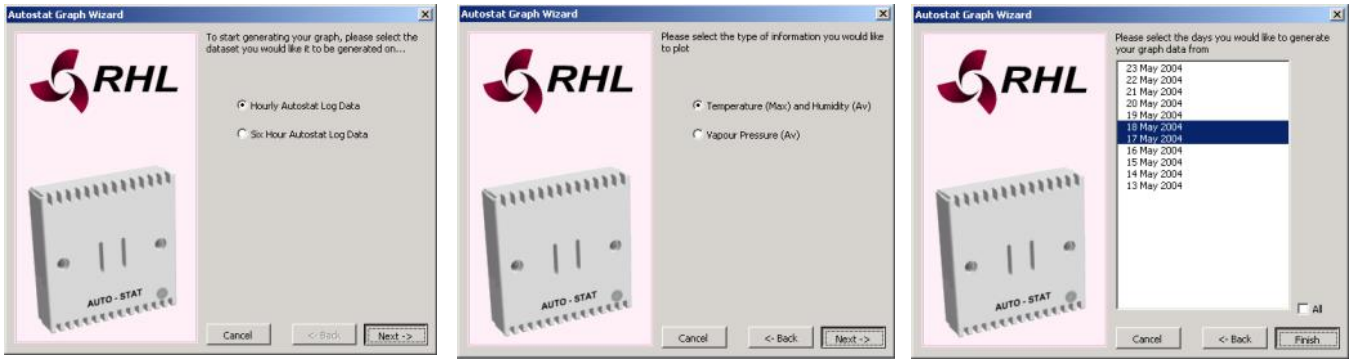
Logs

The Autostat IV Spreadsheet imports an Autostat *.csv file and formats the logs into a human readable form, the three types of logs kept (log every hour, log ever six hours and power logs) are available for viewing from the main menu, both the hourly and six hourly logs can have trigger conditions set in the Setup menu that will highlight cells in the logs that break those conditions, this allows for swift identification of areas that may need attention.

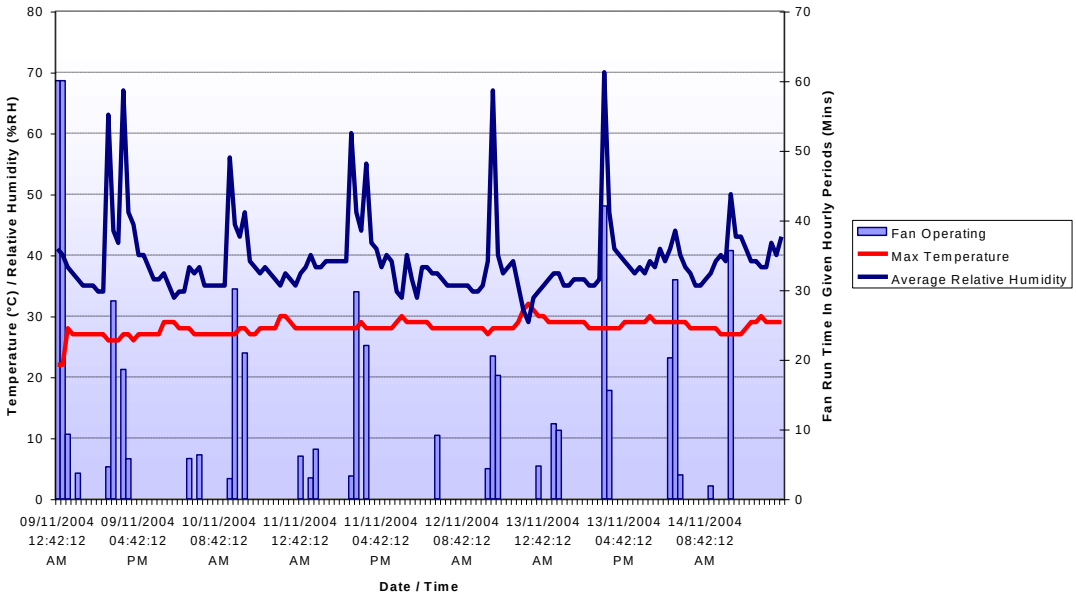
Graphs

Graphs are produced using the Autostat IV graph wizard; available from the main menu. This allows the creation of graphs on either the hourly or six hourly logs, plotting key data like humidity, temperature and vapour pressure with a fan run time indicator, so the response of the fan to given conditions can easily be seen. Examples of the Autostat IV graph wizard are shown in the lower section of the previous page.

Although using the Autostat IV graph wizard is recommended, custom graphs are allowed using the standard Excel wizard.


Autostat Graph Wizard
To start generating your graph, please select the dataset you would like it to be generated on...
Hourly Autostat Log Data
Six Hour Autostat Log Data
Cancel
<- Back
Next ->
Autostat Graph Wizard
Please select the type of information you would like to plot
Temperature (Max) and Humidity (Av)
Vapour Pressure (Av)
Cancel
<- Back
Next ->
Autostat Graph Wizard
Please select the days you would like to generate your graph data from
23 May 2004
22 May 2004
21 May 2004
20 May 2004
19 May 2004
18 May 2004
17 May 2004
16 May 2004
15 May 2004
14 May 2004
13 May 2004
All
Cancel
<- Back
Finish

Temperature (max) and Relative Humidity (Average) Plotted with Fan Operation



RHL Double Glazed Panel

Advanced design. Build to order. And more.

RHL's unique acrylic Double Glazed Window Panel provides an elegant and secure solution for window mounted extraction fans.

The sealed composite acrylic cassette and extraction fan are integrated into the window frame.

The external panel is manufactured in a translucent finish to match the appearance of the glass. It is precision laser cut to ensure highest quality, it is also UV resistant for longer life, and suitable for all areas. Our manufacturing process ensures the same specifications requirements as glass windows: BS 6375 part one and BS 6399 part two, Exposure Category "B".

Glass /acrylic hybrid model is also available for bathroom and WC areas.

All RHL Double Glazed Panels come with 10 year warranty.

ECO FRIENDLY

Item	Part No.
Panel for 100mm fans	**DDG-100-DUBLE**
Panel for 150mm fans	**DDG-150-DUBLE**
Panel baffle (for units above 5th floor)	**DDG-BAFFLE**

STARLIGHT Vandal Resistant Lantern

One of our brightest products.

A vandal resistant lantern of classic style for use in residential areas, car parks and general amenity applications.

Recommended mounting heights: 3m to 5m

The STARLIGHT induction lamp provides comfortable white light colours 83 or 84, with good symmetrical distribution.

With 60,000+ hour lamp life, tough stainless steel and UV-resistant acrylic construction, STARLIGHT lantern is as maintenance free as it gets.

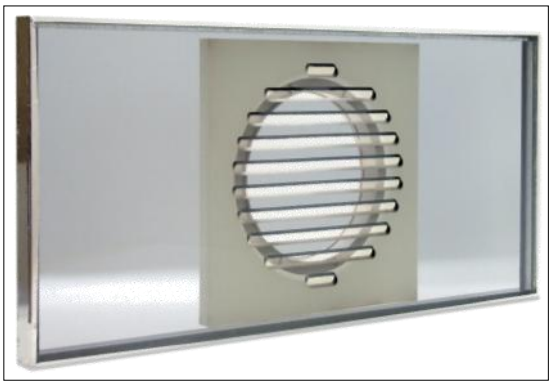
What is induction lighting?

Induction lighting is a combination of electromagnetic induction and gas discharge lighting. An electric current passing through a coil generates an electromagnetic field, including an electric current in the gas filling of a low pressure gas-discharge lamp. A ferrite core intensifies this induction. This induced current causes rise to ultra-violet radiation which in turn is converted into visible light by fluorescent powders inside the lamp bulb.

An induction lighting system comprises an electronic circuit (high frequency generator), the power coupler (antenna) and the low-pressure gas discharge lamp without the use of any filaments or electrodes; and therein lies in the main advantage over other systems. The estimated life of Star-Light lamp system is 60,000 hours 'over 13 years on a 12-hour cycle' - this is significantly longer than that of any other currently available light source. Due to the electrodeless operation the technical life is determined by the electronic components of the HF generator.

Item	Part No.	Kit Contents
STARLIGHT lantern	**STARLIGHT**	RHL Starlight induction lantern

BESPOKE LASER PRECISION CUT FAN ACCESSORIES



RHL offer a wide range of laser precision cut ventilation accessories, from acrylic baffles to complete double glazed panels designed, developed and fully manufactured by our dedicated team of experts, using state of the art laser precision tooling.

Our bespoke laser precision cut accessories are designed and manufactured with durability, practicality and aesthetic appearance in mind. They all benefit from the competence in development and many years of ventilation product experience of RHL.

DOUBLE GLAZED PANELS

RHL DOUBLE GLAZED PANELS are the result of many years of design and development. Their advanced and durable construction ensure ease of installation, quiet fan operation and permanent fixed installation. All these features makes them perfect solution for conservation/heritage areas where no external appearance of fan or grill is permitted.

All RHL DOUBLE GLAZED PANELS are custom made to strict customer specifications, and are backed with 10-year warranty. They are available in smoked acrylic, Cotswold (frosted) acrylic and glass hybrid configurations.

Our standard advanced design allows for panel dimensions up to 1.2m length and width. Larger panels can be custom designed, manufactured and tested subject to specific requirements.

BAFFLES / HIGH RISE BAFFLES

Precision cut to exact customer specifications. High Rise Baffle is specifically designed for ventilation applications above fifth floor to significantly reduce draughts, from both horizontal and vertical high level winds.

For further details, including pricing, please contact our sales office on **0118 9661655**.

RHL High Level Baffle

Custom designed and precision laser cut high level baffle for high rise buildings. Tough and reliable design, attached directly to the wall. A very neat design allowing for a prompt installation.

RHL Ventilation Accessories

METAL GRILLES

Code	Description
MGCustom	Aluminium Grille for both kitchen and bathroom fans is designed to fit over existing air bricks to provide better protection against wind/rain. Different colours and sizes are available on request.
MGR150	150mm Circular round aluminium grille with mesh, white, but different colours available on request
MGR100	100mm Circular round aluminium grille with mesh, white, but different colours available on request

WALL PLATES

Code	Description
BP 150/250	250 x 250 mm Foamex white plate with 155mm hole
BP 150/350	350 x 350 mm Foamex white plate with 155mm hole
BP100/250	250 x 250 mm Foamex white plate with 105mm hole
BP100/350	350 x 350 mm Foamex white plate with 105mm hole
BP BRN 150/250	250 x 250 mm Acrylic brown plate with 155mm hole, + 4 corner countersunk holes
BP BRN 100/250	250 x 250 mm Acrylic brown plate with 105 mm hole, + 4 corner countersunk holes

FAN ACCESSORIES

Type	Size (mm)	Description
External Grilles For Single Duct Terminal Wall Fixing		
GB100	100	Brown external wall grille with 100mm spigot
GB150	150	Brown external wall grille with 150mm spigot
GW60	60	White external wall grille with 60mm spigot
GW100	100	White external grille with 100mm spigot
GW150	150	White external grille with 150mm spigot
GT100	100	Terracotta external grille with 100mm spigot
GT150	150	Terracotta external grille with 150mm spigot
GBEIGE100	100	Beige external grille with 100mm spigot
GBEIGE150	150	Beige external grille with 150mm grille
Bend Kits for Solid Ducting		
100BDC	100	100mm bend with ducting and 0.5m
150BDC	150	150mm bend with ducting and 0.5m

RHL Ventilation Accessories

DUCTING

Code	Description
FLEX-100	Round PVC ducting 100mm dia. 3m
FLEX-125	Round PVC ducting 125mm dia. 3m
FLEX-150	Round PVC ducting 150mm dia. 3m
AL-100	Semi-rigid aluminium ducting 100mm dia. 3m
AL-150	Semi-rigid aluminium ducting 150mm dia. 3m
AL-200	Semi-rigid aluminium ducting 200mm dia. 3m
TEL-100	100mm telescoping tube
TEL-150	150mm telescopic tube
TUBE-68	68mm plastic tube 1m
TUBE-100	100mm plastic tube 1m
TUBE-125	125mm plastic tube 1m
TUBE-150	150mm plastic tube 1m

TRANSFORMERS

Code	Description
TRANSFORMER	12V transformer, 1-gang case
T-TRANSFORMER	12V proportional timer transformer, 1-gang case

ROOF COWLS

Code	Description
RHL101 Angled roof terminal	110mm angled weathering slate 457mm x 457mm
RHL100 Flat roof terminal	110mm flat weathering slate 406mm x 406mm

100mm Roof vent kits complete with weathering slate, 100mm roof cowl and 500mm solid insulating pipe

Code	Description
RHL Roof cowl Grey	Grey 160mm roof vent for angled or flat roof supplied with ducting and insulation sleeve.
RHL Roof cowl Red	Tile red 160mm roof vent for angled or flat roof supplied with ducting and insulation sleeve.

150mm Roof vent kits complete with a large leaded sheet, 150mm roof cowl and 500mm solid insulating pipe

HIGH LEVEL PUSH THROUGH VENTS

Code	Description
PT-HIGH-RISE-100	Push through high rise 100mm round cowl
PT-HIGH-RISE-150	Push through high rise 150mm round cowl

Remote AUTOSTAT Controller Installation

Basis for humidity controller remote from fan

- Humidity is temperature related - all temperature variations effect relative humidity (relative humidity meaning relative to water saturation of air at differing temperatures);
- Fundamental laws of physics require that vapour at high pressure will migrate to areas of low vapour pressure that is to cooler areas and cold surfaces.

Controller positioning requirements

- on an internal wall if possible (ideal position);
- adjacent to moisture source or between moisture source and external doorway;
- in large room, site close to moisture source;
- top edge to be 50 - 100mm down from the ceiling;
- clear of corners;
- clear of any protrusions, cupboards etc;
- not within 1000mm of a radiator;
- clear of external opening (not above doors).

The above are the requirements to detect moisture production as it is produced. Humidity controllers within fans are unable to meet all of the above criteria.

Remote Autostat advantages

- Fixing on an internal wall at high level provides for optimum position to monitor and control internal humidity conditions
- Able to position at best vantage point to detect new air bourn moisture
- Interference from external humidity and temperature are limited
- Data log function – valid (temperature & humidity)

Notes on fans that contain humidity controllers

- Fans situated on external walls or windows are usually on the cooler surface within the room, thereby attracting water vapour, as the air is cooler. Consequently, a higher than ambient humidity reading occurs;
- Humidity stays higher for excess periods causing energy loss and a nuisance to tenant;
- External air causes interference with reading;
- Integral nature of sensor remote from moisture source – moisture migrates to cooler areas of dwelling before detection occurs, often when detected the operation of a fan is too late to control moisture already migrated to cooler areas such as bedrooms.

The above represent some of the reasons for not using a sensor at the same location as the fan.

Furthermore, integral humidity controller can increase the nuisance factor to the householder, who often correctly suspects the automatic operation of the fan does not follow logically to moisture production. This has given rise to occupants finding ways to switch the fans off, usually never to be turned back on again making the installation of the fan system pointless and a waist of municipal resources. Some fan manufacturers have introduced monitoring systems to overcome the tenants turning the fans off and offering a legal remedy (or get out) to condensation/mould growth cases.

A correctly specified system does not need a monitoring system, as the fan will operate at sensible times in line with user expectation providing a worthwhile capital expenditure.

Humidity Control with absolute Humidity 'g/M^3 water in air as a basis (temperature independent) with automatic allowance for ambient humidity over time should be the basis of intelligent humidity controllers, the RHL Autostat being a principle example.

Ventilation and Building Regulations

Building Regulations - Part F: The Means of Ventilation

The purpose of the regulation is to ensure 'adequate means of ventilation is provided for people in the building'. According to the document, ventilation is the 'removal of 'stale' air from a building and replacement with 'fresh' outside air.'

This particular document gives a general overview of the current regulations with an outline for ways in which these regulations can be met.
Primary objective of induced ventilation is to condition air at a comfortable and safe level while protecting the fabric of the building. Building regulations for ventilation systems primarily provide for controlled humidity condition of air during the heating season.

Requirement:

F1.- There shall be adequate means of ventilation provided for people in the building.

Limits on Application:

Requirement F1 does not apply to a building or space within a building:
A.) into which people do not normally go; or
B.) which is used solely for storage; or
C.) which is a garage used solely in connection with a single dwelling

Guidelines on required Ventilation Rates

Part F, recommends air flow rates for various types of ventilation systems, as well as energy conservation and cost of supply and installation information.

Table 1.1a Extraction Ventilation Rates

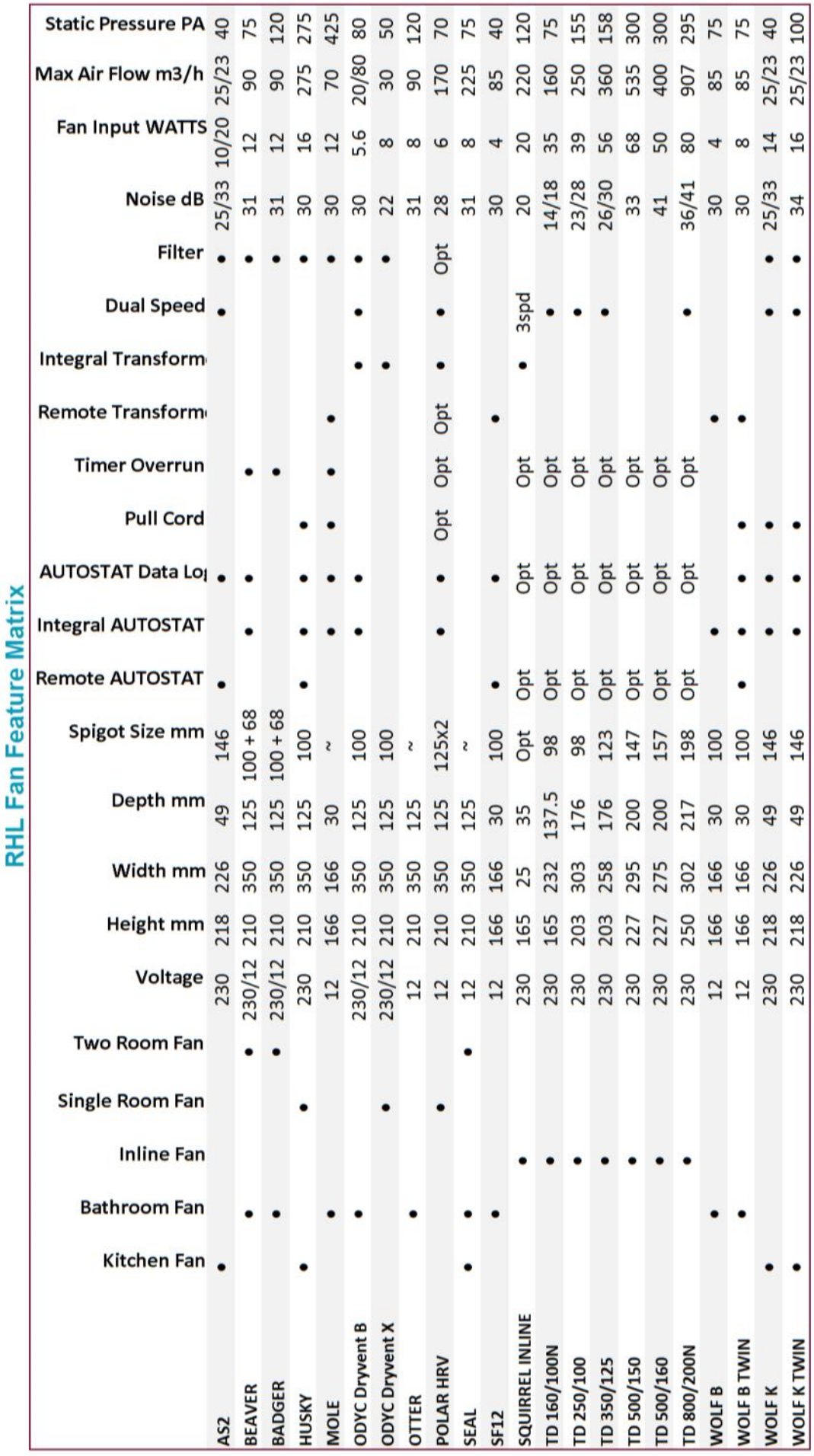
Room	Min intermittent extract rate	Continuous extract rate	
		Min high rate	Min low rate
Kitchen	30 l/s, adjacent to hob, 60 l/s elsewhere	13 l/s	Total extract rate must be at least the whole building ventilation rate in Table 1.1b.
Utility room	30 l/s	8 l/s	
Bathroom	15 l/s	8 l/s	
Sanitary	6 l/s	6 l/s	N/A

Table 1.1b Whole Building Ventilation Rates

	Number of bedrooms in dwelling				
	1	2	3	4	5
Whole building ventilation rate [a,b] l/s	13	17	21	25	29

Notes:
a. In addition, the minimum ventilation rate should be not less than 0.2l/s per m^2 internal floor area (this includes each floor, e.g. For a two-storey building, add the ground and first floor areas).
b. This is based on two occupants in the main bedroom and a single occupant in all other bedrooms. This should be used as the default value. If greater level of occupancy is expected, then add 4l/s per occupant.

RHL Fan Feature Matrix



	Kitchen Fan	Bathroom Fan	Inline Fan	Single Room Fan	Two Room Fan	Voltage	Height mm	Width mm	Depth mm	Spigot Size mm	Remote AUTOSTAT	Integral AUTOSTAT	AUTOSTAT Data Lo	Pull Cord	Timer Overrun	Remote Transform	Integral Transform	Dual Speed	Filter	Noise dB	Fan Input WATTS	Max Air Flow m3/h	Static Pressure PA
AS2	•					230	218	226	49	146	•		•					•	•	25/33	10/20	25/23	40
BEAVER		•			•	230/12	210	350	125	100 + 68		•	•		•					•	31	12	90	75
BADGER		•			•	230/12	210	350	125	100 + 68					•					•	31	12	90	120
HUSKY	•			•		230	210	350	125	100	•	•	•	•		•				•	30	16	275	275
MOLE		•				12	166	166	30	~		•	•	•	•	•				•	30	12	70	425
ODYC Dryvent B		•				230/12	210	350	125	100		•	•				•	•		•	30	5.6	20/80	80
ODYC Dryvent X				•		230/12	210	350	125	100							•			•	22	8	30	50
OTTER		•				12	210	350	125	~											31	8	90	120
POLAR HRV				•		12	210	350	125	125x2		•	•	Opt	Opt	Opt	•	•	Opt		28	6	170	70
SEAL	•	•			•	12	210	350	125	~											31	8	225	75
SF12		•				12	166	166	30	100	•		•			•					30	4	85	40
SQUIRREL INLINE			•			230	165	25	35	Opt	Opt	Opt	Opt		Opt			3spd			20	20	220	120
TD 160/100N			•			230	165	232	137.5	98	Opt	Opt	Opt		Opt			•			14/18	35	160	75
TD 250/100			•			230	203	303	176	98	Opt	Opt	Opt		Opt			•			23/28	39	250	155
TD 350/125			•			230	203	258	176	123	Opt	Opt	Opt		Opt			•			26/30	56	360	158
TD 500/150			•			230	227	295	200	147	Opt	Opt	Opt		Opt						33	68	535	300
TD 500/160			•			230	227	275	200	157	Opt	Opt	Opt		Opt						41	50	400	300
TD 800/200N			•			230	250	302	217	198	Opt	Opt	Opt		Opt			•			36/41	80	907	295
WOLF B		•				12	166	166	30	100		•				•					30	4	85	75
WOLF B TWIN		•				12	166	166	30	100	•	•	•	•		•					30	8	85	75
WOLF K	•					230	218	226	49	146		•	•	•				•	•		25/33	14	25/23	40
WOLF K TWIN	•					230	218	226	49	146		•	•	•				•	•		34	16	25/23	100

RHL Fan Selection Chart

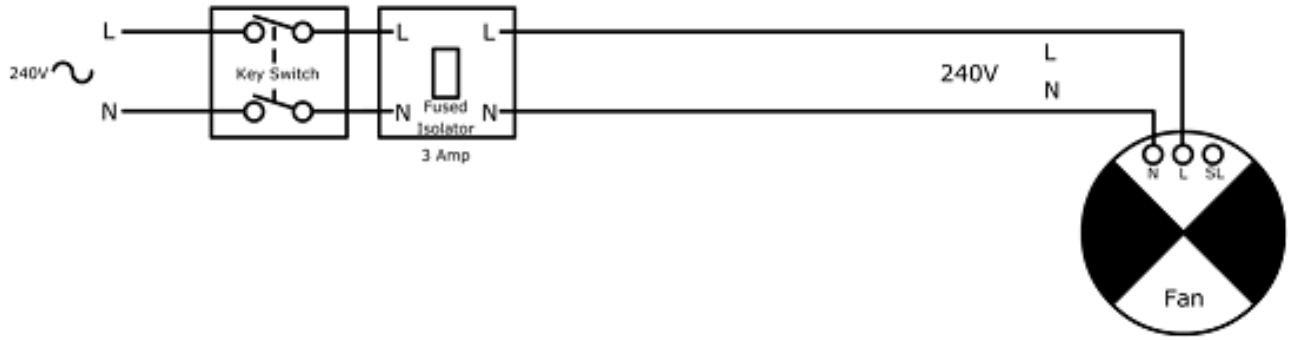
1 FAN USE	2 FAN LOCATION	3 AUTOSTAT LOCATION	4 RHL FAN MODEL
KITCHEN	WALL	INTEGRAL	HUSKY, WOLF K, WOLF K-TWIN
		REMOTE	AS2 KIT
		NO AUTOSTAT	SEAL, AS2
	WINDOW	INTEGRAL	WOLF K
		REMOTE	AS2 KIT
		NO AUTOSTAT	AS2
BATHROOM	*WALL*	*INTEGRAL*	*BEAVER, MOLE, DRYVENT B, WOLF B, WOLF B-TWIN*
		REMOTE	*SF12 WALL KIT*
		NO AUTOSTAT	*BADGER, SF12*
	WINDOW	*INTEGRAL*	*WOLF B*
		REMOTE	*SF12 WINDOW KIT*
		NO AUTOSTAT	*SF12*
SINGLE ROOM	WALL	REMOTE	HUSKY, POLAR HRV
		NO AUTOSTAT	DRYVENT X
TWO ROOM	WALL	INTEGRAL	BEAVER, MOLE, DRYVENT B, WOLF B, WOLF B-TWIN
		NO AUTOSTAT	BADGER
INLINE	CONCEALED	OPTIONAL	SQUIRREL INLINE, MIXVENT INLINE

For further information/assistance, please call RHL on +44 (0) 1491 419179

Wiring Diagrams

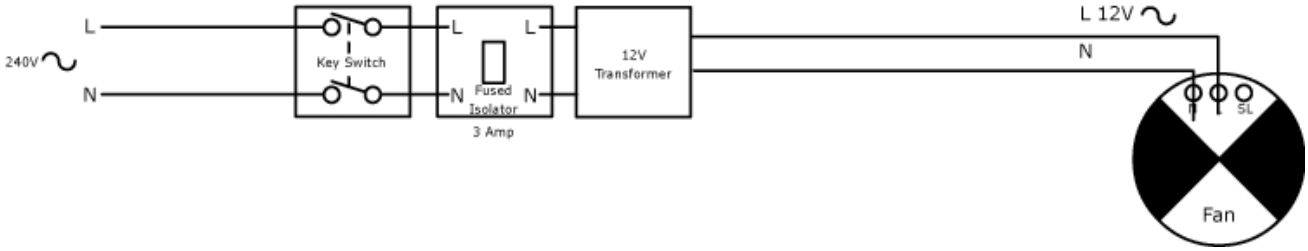
Wiring Diagram A

Applications: WOLF K, DRYVENT B & K, POLAR HRV



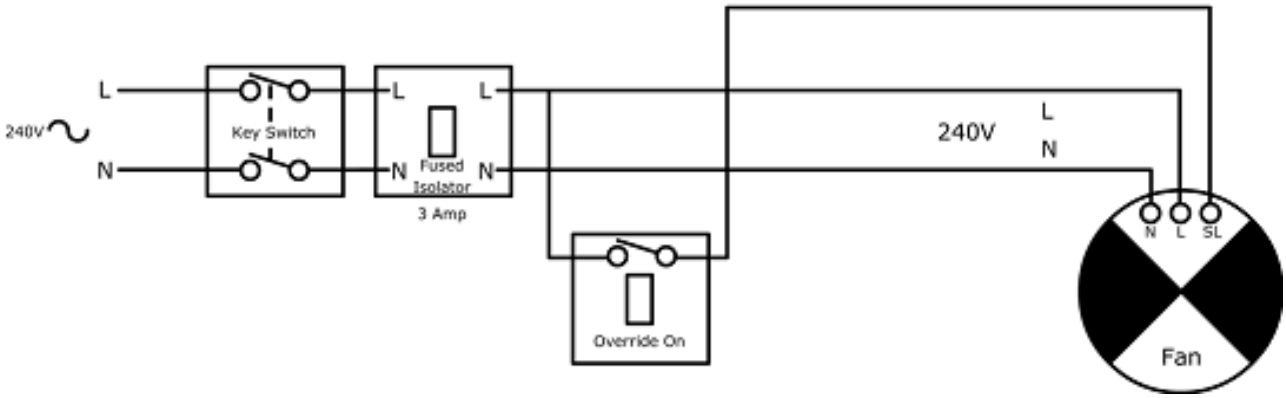
Wiring Diagram B

Applications: WOLF B



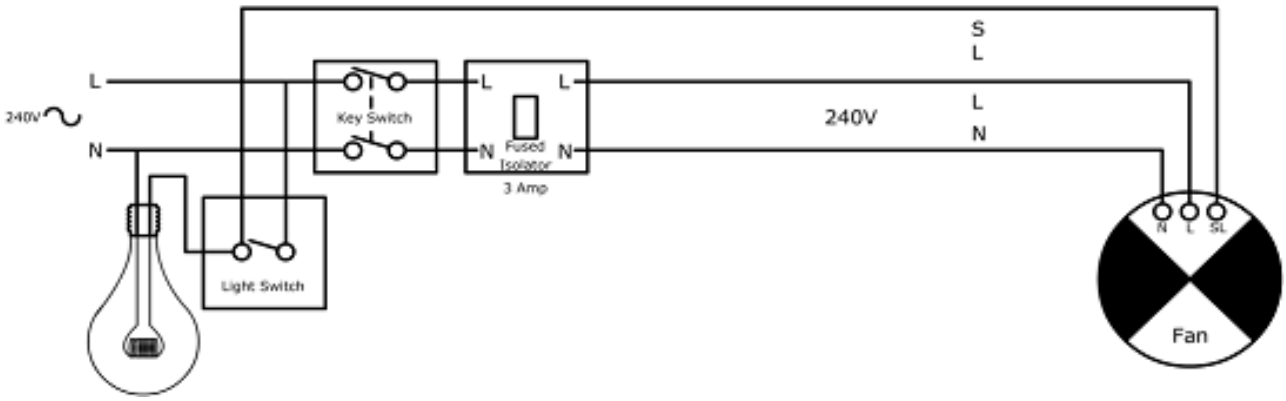
Wiring Diagram C

Applications: HUSKY



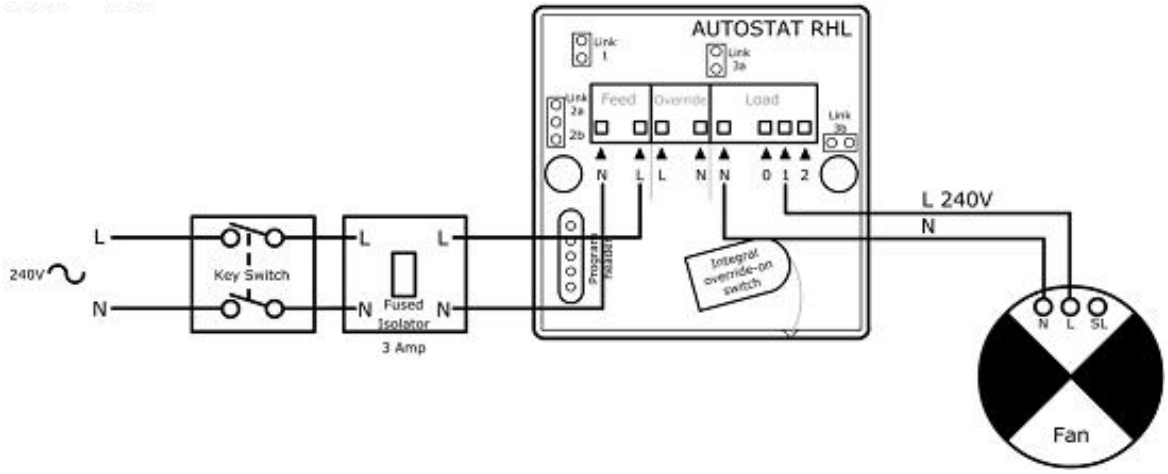
Wiring Diagram D

Applications: OTTER



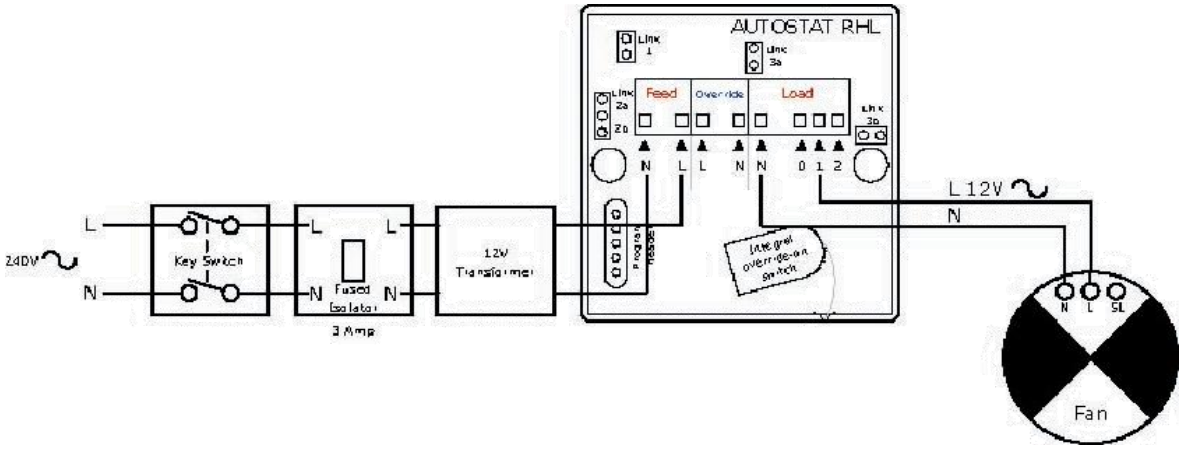
Wiring Diagram E

Applications: AS2 (remote AUTOSTAT control)



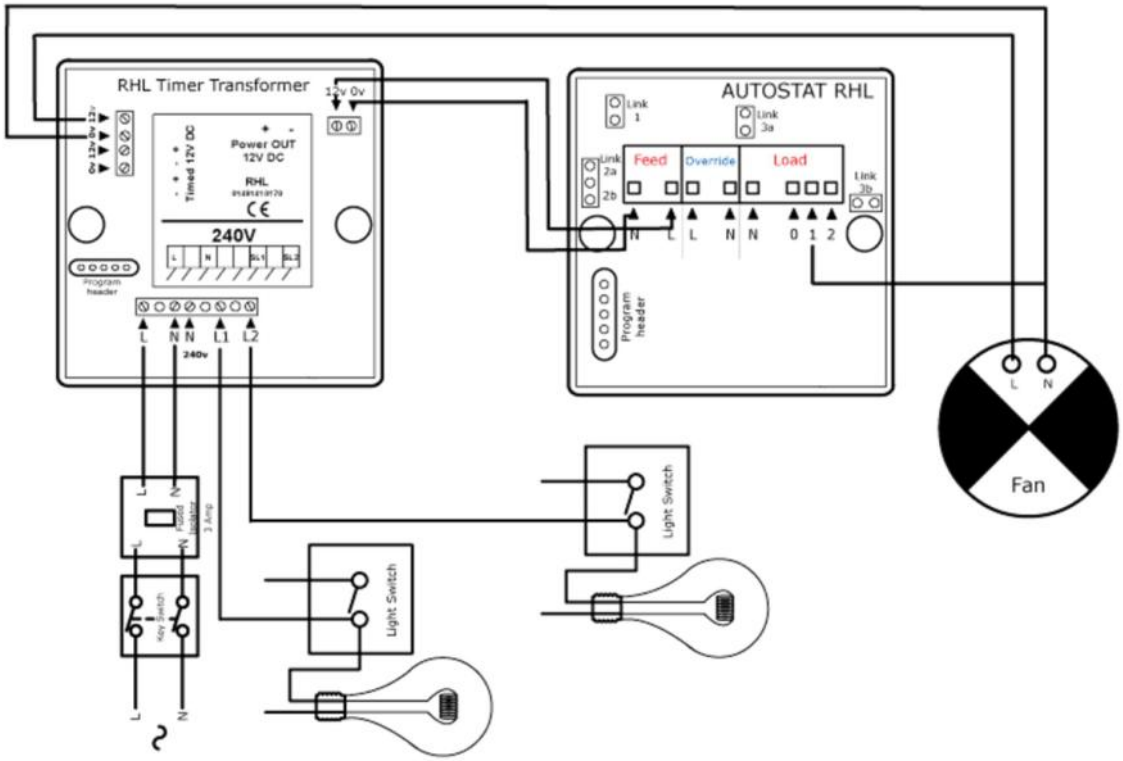
Wiring Diagram F

Applications: SF12



Wiring Diagram G

Applications: BADGER, BEAVER



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